2017 GiveWell cost-effectiveness analysis (CEA) — Version 2
Release notes

Summary

We made a series of structural changes to the cost-effectiveness models for Malaria Consortium and the Against Malaria Foundation (AMF). The table below shows the output of the the models after these changes (before the two additional changes noted below):

Charity	Median *[Charity]* vs. Cash[1] Before	Median *[Charity]* vs. Cash After	Percentage Change
AMF	2.9x	3.2x	10.2%
Malaria Consortium	3.3x	2.9x	-11.8%

We made two additional changes for this CEA version:

1. To reflect our current team, we removed three individuals' inputs from the model and added inputs for one individual.
2. We allowed individuals contributing to the CEA to change their input values for parameters and personal values judgments.

The table below displays how programs' median cost-effectiveness changed between Version 1 and Version 2 of our 2017 Cost-effectiveness Analysis, once the additional changes were made.

Charity	Median *[Charity]* vs. Cash Before	Median *[Charity]* vs. Cash After	Percentage Change
AMF	2.9x	3.8x	33.0%
Deworm the World	10.2x	8.9x	-12.9%
GiveDirectly	1.0x	1.0x	0.0%
Malaria Consortium	3.3x	3.3x	-1.0%
SCI	8.1x	6.6x	-18.1%

[1] The tables in this document list "*[Charity]* vs. Cash" metrics. These metrics capture how cost-effective we expect a charity is relative to GiveDirectly, which distributes unconditional cash transfers. For example, if we listed AMF as 2x cash, that would indicate that our model suggests a dollar spent by AMF accomplishes twice as much good as a dollar spent by GiveDirectly.

Sightsavers	5.0x	4.3x	-13.8%

Change 1: Simplified process for estimating deaths averted due to ITN coverage

What changed? We model mortality reductions from insecticide-treated net (ITN) coverage based on the summary effect from Lengeler 2004 [http://onlinelibrary.wiley.com/wol1/doi/10.1002/14651858.CD000363.pub2/full], a meta-analysis of universal net and curtain distributions. We adjust the effect found in that meta-analysis—5.53 under-5 deaths averted per 1,000 children under 5 per year—to account for differences between study contexts and contexts where AMF carries out distributions today. In this update, we replace a complicated adjustment process with a simpler one.

In the new process, we start by taking the rate of all-cause under-5 mortality in ITN trials included in Lengeler 2004. We compare that rate with the rate of all-cause under-5 mortality in settings where AMF works today. We use the ratio of these mortality rates as an initial proxy for the differences we expect in ITNs' capacity to avert deaths in different settings.

To improve the accuracy of our proxy, we attempt to strip out the role ITNs have played in bringing down mortality rates. In other words, we want to know how high mortality rates would be today if ITNs were never distributed. As a result, we slightly inflate the mortality rate in today's contexts before comparing it to the mortality rate during ITN trials to form our final proxy.

This proxy will only be valid if the fraction of all-cause mortality that came from malaria deaths in trial settings is similar to the fraction of all-cause mortality coming from malaria deaths in settings where AMF distributes nets. We added an additional parameter, in the *Parameters* tab, labeled *Proportion of mortality attributed to malaria in areas AMF works vs. the contexts of trials in Lengeler 2004* that individuals can use to make further adjustments if they believe the adjustment based on all-cause mortality rates is insufficient. We added a *Sensitivity checks* section to the bottom of the *Nets* tab, which includes data than can be used to inform the value of this parameter.

Why did we make this change? The adjustment process used in the last version of the CEA was unnecessarily complicated.

How does this change affect the results? To see how this change affected the results, we by default used the suggested value of 83% for the new *Proportion of mortality attributed to malaria in areas AMF works vs. the contexts of trials in Lengeler 2004* parameter.

Charity	**Median *[Charity]* vs. Cash Before**	**Median *[Charity]* vs. Cash After**	**Percentage Change**
AMF	2.9x	2.8x	-3.1%

Change 2: Dropped the *External validity adjustment for declines in malaria mortality*

What changed? We use different methods to estimate mortality in the seasonal malaria chemoprevention (SMC) CEA and the ITN CEA. In past versions of the CEA, we included an adjustment to force consistency between the SMC and ITN models. In this CEA release, that adjustment has been removed from the model.

Why did we make this change? A sensitivity analysis we did in the past suggested that our ITN and SMC models implied different underlying rates of malaria-attributable mortality. After modifying our SMC model to account for indirect malaria mortality, we no longer thought this adjustment was needed. The role this adjustment played is now fulfilled by the new *Proportion of mortality attributed to malaria in areas AMF works vs. the contexts of trials in Lengeler 2004* parameter.

How does the change affect the results?

Charity	Median *[Charity]* vs. Cash Before	Median *[Charity]* vs. Cash After	Percentage Change
AMF	2.8x	3.0x	+7.3%

Change 3: Made the ITN usage adjustment a parameter

What changed? In past versions of the CEA, we applied an adjustment to account for assumed lower ITN usage in AMF distributions than in trial settings. We have moved this input from the *Nets* tab to the *Parameters* tab. We added a link to a document that gives additional details about net usage in bed net trials and AMF distributions.

Why did we make this change? We're uncertain about the appropriate value for the usage adjustment. Moving it to the parameters page may emphasize the uncertainty involved and encourage discussion about the appropriate value for the usage adjustment.

How does the change affect the results? All else equal, cost-effectiveness is unchanged. Moving this adjustment to the *Parameters* tab may lead individuals to choose different values that move bottom line cost-effectiveness estimates.

Change 4: Reduced our adjustment for pre-existing nets in areas AMF carries out distributions

What changed? Previously, we assumed that 30% of individuals covered by AMF distributions had non-worn-out pre-existing nets. In this update, we reduced this figure from 30% to 20%.

Why did we make this change? The pre-existing nets adjustment is highly uncertain, since we don't have reliable data from all areas where AMF distributes nets. We decided that the adjustment we were using was too pessimistic. However, we still see this value as very uncertain.

How does the change affect the results?

Charity	Median *[Charity]* vs. Cash Before	Median *[Charity]* vs. Cash After	Percentage Change
AMF	3.0x	3.2x	+5.9%

Change 5: Added sections titled *Deaths averted — overall* and *Summary calculations* to the ITN model

What changed? We added sections titled *Deaths averted — overall* and *Summary calculations* to the *Nets* tab. The *Deaths averted — overall* section shows the cost per death averted according to each individual's CEA inputs. The *Summary calculations* section shows the median cost per death averted and the median cost per under-5 death averted.

Why did we make this change? We frequently reference these values, and many GiveWell donors are interested in these numbers. We therefore decided it would be valuable to display these numbers in the file.

How does the change affect the results? This change has no effect on the results.

Change 6: Altered how we account for malaria mortality in the SMC CEA

What changed? In past versions of the CEA, we had a parameter labeled *If malaria were eliminated, the fraction of all-cause mortality that would be averted in 3- to 59-month olds in ACCESS-SMC countries.* Now we calculate this value directly. We start with the rate of malaria-specific mortality then inflate this value to account for indirect malaria mortality that isn't accounted for in direct estimates of malaria mortality.

Why did we make this change? After talking with a number of malaria experts, we believe we can make an informed guess about the rate of indirect malaria deaths relative to direct malaria deaths. We decided we would prefer to calculate this value directly rather than leaving it as a discretionary parameter.

How does this change affect the results?

Charity	Median *[Charity]* vs. Cash Before	Median *[Charity]* vs. Cash After	Percentage Change
Malaria Consortium	3.3x	3.0x	-8.8%

Change 7: Added a *supplementary calculations* section to the *Nets* tab

What changed? A section labeled *Supplementary calculations* was added to the *Bed nets* tab. This section displays calculations that were formerly stored in external workbooks.

Why did we make this change? Supplementary calculations play an important role in the nets CEA. Moving these calculations to the main workbook improves usability.

How does the change affect the results? Cost-effectiveness figures for AMF change by a very small amount, since the results of these supplementary calculations are no longer rounded.

Charity	Median *[Charity]* vs. Cash Before	Median *[Charity]* vs. Cash After	Percentage Change
AMF	3.2x	3.2x	+0.02%

Change 8: Added a supplementary calculations section to the *SMC* tab and made small adjustments

What changed? A section labeled *Supplementary calculations* was added to the *SMC* tab. This section displays calculations that were formerly stored in external workbooks. We renamed some inputs to improve clarity and made a minor adjustment to one input used in the calculations. The input labeled *Annual all-cause 3- to 59-month old mortality rate versus overall 3- to 59-month old mortality rate* was previously calculated in a complex manner based on data from the Global Burden of Disease Project. We now use the fraction 12/57 for this input (since we are accounting for 12 months in a 57 month timeframe).

Why did we make this change? Moving these calculations to the main workbook and making them simpler improves usability.

How does the change affect the results?

Charity	Median *[Charity]* vs. Cash Before	Median *[Charity]* vs. Cash After	Percentage Change
Malaria Consortium	3.0x	2.9x	-2.8%

Change 9: Added section divisions to the SMC tab

What changed? The SMC tab is now divided into several labeled sections

Why did we make this change? The divisions make it easier to understand what is going on within the SMC CEA.

How does the change affect the results? No change in results.

Change 10: Reframed SMC CEA to account for the cost per child targeted rather than cost per "equivalent child treated with 4 cycles"

What changed? The CEA is now framed in terms of the cost per child targeted rather than cost per "equivalent child treated with 4 cycles"

Why did we make this change? The new framing is more intuitive.

How does the change affect the results? No change in results.

Change 11: Cleaned up SMC coverage and adherence adjustments

What changed? We removed the *Adjustment to get from coverage survey figures to actual coverage.* This adjustment was set to 100% for all individuals contributing inputs to the CEA. The value for *Overall adjustment for lack of adherence to treatment regimen* used to be drawn from an outside sheet. Now it is calculated directly in the SMC tab. Intermediate steps were added to the coverage adjustment calculation.

Why did we make this change? These changes make the SMC CEA easier to understand.

How does the change affect the results? Final estimates for Malaria Consortium change by a very small amount since the *Overall adjustment for lack of adherence to treatment regimen* is no longer rounded.

Charity	**Median *[Charity]* vs. Cash Before**	**Median *[Charity]* vs. Cash After**	**Percentage Change**
Malaria Consortium	2.9x	2.9x	-0.5%

Change 12: Renamed the *Moral weights* tab to *Personal values* and the *Bed nets* tab to *Nets*

What changed? The workbook tab titled *Moral weights* was renamed to *Personal values*, and the tab titled *Bed Nets* was renamed to *Nets*.

Why did we make this change? We believe the title *Personal values* does a better job of conveying the subjective nature of judgments made on that tab. We changed *Bed nets* to *Nets* to be more consistent with standard language we are trying to use on the GiveWell website.

How does the change affect the results? No change in results.

Change 13: Changed where the insecticide resistance adjustment is applied to the development benefits conferred by ITNs

What changed? In the past, we inflated the cost per child covered figure based on the insecticide resistance adjustment before calculating the development benefits conferred per dollar spent on ITNs. Now we use an uninflated cost figure and instead discount the *Value of development benefits from a year of ITN coverage relative to a year of deworming in Baird* parameter based on the insecticide resistance adjustment.

Why did we make this change? We believe the new approach is simpler and more straightforward.

How does the change affect the results? This change has no effect on the results.

14. Changed which individuals were included in the CEA

What changed? We removed Ajeya, Rebecca, and Tim's columns from the CEA. We added a column for James.

Why did we make this change? The individuals who were removed from the CEA are no longer involved with GiveWell research. James is a contractor who recently began working on GiveWell research, and we wanted his views to be accounted for in our model.

How does the change affect the results?

Charity	**Median *[Charity]* vs. Cash Before**	**Median *[Charity]* vs. Cash After**	**Percentage Change**
AMF	3.2x	4.7x	49.0%
Deworm the World	10.2x	10.1x	-1.3%
GiveDirectly	1.0x	1.0x	0.0%
Malaria Consortium	2.9x	4.1x	39.7%
SCI	8.1x	7.2x	-11.2%
Sightsavers	5.0x	5.0x	-0.2%

15. Solicited new inputs from CEA contributors

What changed? We allowed CEA contributors to update their values used in the CEA (including the values used for items that were added to the *Parameters* tab in this update). This resulted in changes on both the *Parameters* tab and the *Personal Values* tab.

Why did we make this change? We want to encourage individuals involved in GiveWell's research to periodically re-engage with GiveWell's cost-effectiveness analysis and update inputs as they see fit.

How does the change affect the results?

Charity	**Median *[Charity]* vs. Cash Before**	**Median *[Charity]* vs. Cash After**	**Percentage Change**
AMF	4.7x	3.8x	-19.0%
Deworm the World	10.1x	8.9x	-11.7%
GiveDirectly	1.0x	1.0x	0.0%
Malaria Consortium	4.1x	3.3x	-19.7%
SCI	7.2x	6.6x	-7.8%
Sightsavers	5.0x	4.3x	-13.6%